



#3

SEQUENCE LISTING

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<120> New genes containing a DNA sequence coding for a hydroxynitrile lyase, recombinant proteins derived therefrom and having hydroxynitrile lyase activity, and use thereof

<130> 2001-1882A/LC/01553

<140> 10/046,232

<141> 2002-01-16

<150> A60/2001

<151> 2001-01-16

<150> A523/2001

<151> 2001-04-03

<160> 24

<170> PatentIn Ver. 2.1

<210> 1

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<212> DNA

<213> Artificial Sequence

<220>

<223> Description of the artificial sequence: Synthetic oligonucleotide primer

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35

<210> 2

<211> 33

<212> DNA

<213> Artificial Sequence

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<223> Description of the artificial sequence: Synthetic oligonucleotide primer

<400> 2

cggaattctt cacatggact cttgaatatt atg

33

<210> 3

<211> 64

<212> DNA

<213> Artificial Sequence

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<223> Description of the artificial sequence: Synthetic oligonucleotide primer

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<211> 68

<212> DNA

<213> Artificial Sequence

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<223> Description of the artificial sequence: Synthetic oligonucleotide primer

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aatacttc 68

<210> 5

<211> 67

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<223> Description of the artificial sequence: Synthetic oligonucleotide primer

<400> 5

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<210> 6

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of the artificial sequence: Synthetic oligonucleotide primer

<400> 6

gatgtattgg aagagaagag gatcttctct act 33

<210> 7

<211> 56

<212> DNA

<213> Artificial Sequence

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<223> Description of the artificial sequence: Synthetic oligonucleotide primer

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 <223> Description of the artificial sequence: Synthetic oligonucleotide primer

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 <223> Description of the artificial sequence: Synthetic oligonucleotide primer

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 <223> Description of the artificial sequence: Synthetic oligonucleotide primer

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 <213> Artificial Sequence

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 <223> Description of the artificial sequence: Synthetic oligonucleotide primer

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 <213> Artificial Sequence

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 <223> Description of the artificial sequence: Synthetic oligonucleotide primer

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 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of the artificial sequence: Synthetic oligonucleotide primer

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 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of the artificial sequence: Synthetic oligonucleotide primer

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 <213> Artificial Sequence

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 <223> Description of the artificial sequence: Synthetic oligonucleotide primer

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 <210> 18

<211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of the artificial sequence: Synthetic oligonucleotide primer

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<210> 19
 <211> 2162
 <212> DNA
 <213> Prunus amygdalus

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<210> 20
 <211> 559
 <212> PRT

<213> Prunus amygdalus

<400> 20

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Gln	Ala	Ser	Val	Glu	Lys	Ile	Leu	Phe	Ser	Ser	Asn	Thr	Ser	Asn	Leu	
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Gly Thr Pro Gln Leu Leu Leu Leu Ser Gly Val Gly Pro Glu Ser Tyr
 290 295 300
 Leu Ser Ser Leu Asn Ile Thr Val Val Gln Pro Asn Pro Tyr Val Gly
 305 310 315 320
 Gln Phe Val Tyr Asp Asn Pro Arg Asn Phe Ile Asn Ile Leu Pro Pro
 325 330 335
 Asn Pro Ile Glu Ala Ser Val Val Thr Val Leu Gly Ile Arg Ser Asp
 340 345 350
 Tyr Tyr Gln Val Ser Leu Ser Ser Leu Pro Phe Ser Thr Pro Pro Phe
 355 360 365
 Ser Leu Phe Pro Thr Thr Ser Tyr Pro Leu Pro Asn Ser Thr Phe Ala
 370 375 380
 His Ile Val Ser Gln Val Pro Gly Pro Leu Ser His Gly Ser Val Thr
 385 390 395 400
 Leu Asn Ser Ser Ser Asp Val Arg Ile Ala Pro Asn Ile Lys Phe Asn
 405 410 415
 Tyr Tyr Ser Asn Ser Thr Asp Leu Ala Asn Cys Val Ser Gly Met Lys
 420 425 430
 Lys Leu Gly Asp Leu Leu Arg Thr Lys Ala Leu Glu Pro Tyr Lys Ala
 435 440 445
 Arg Asp Val Leu Gly Ile Asp Gly Phe Asn Tyr Leu Gly Val Pro Leu
 450 455 460
 Pro Glu Asn Gln Thr Asp Asp Ala Ser Phe Glu Thr Phe Cys Leu Asp
 465 470 475 480
 Asn Val Ala Ser Tyr Trp His Tyr His Gly Gly Ser Leu Val Gly Lys
 485 490 495
 Val Leu Asp Asp Ser Phe Arg Val Met Gly Ile Lys Ala Leu Arg Val
 500 505 510
 Val Asp Ala Ser Thr Phe Pro Tyr Glu Pro Asn Ser His Pro Gln Gly
 515 520 525
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<210> 21
 <211> 1632
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of the artificial sequence: DNA coding for hybrid protein PamHNL5xGOX

<400> 21

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<210> 22

<211> 534

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of the artificial sequence: Hybrid protein PamHNL5xGOX

<400> 22

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Asp Thr Ser Ser Glu Gly Ser Tyr Asp Tyr Ile Val Ile Gly Gly Gly
      35             40            45

Thr Ser Gly Cys Pro Leu Ala Ala Thr Leu Ser Glu Lys Tyr Lys Val
      50             55            60

Leu Leu Leu Glu Arg Gly Thr Ile Ala Thr Glu Tyr Pro Asn Thr Leu
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65	70	75	80
Thr Ala Asp Gly Phe Ala Tyr Asn Leu Gln Gln Gln Asp Asp Gly Lys	85	90	95
Thr Pro Val Glu Arg Phe Val Ser Glu Asp Gly Ile Asp Asn Val Arg	100	105	110
Ala Arg Ile Leu Gly Gly Thr Thr Ile Ile Asn Ala Gly Val Tyr Ala	115	120	125
Arg Ala Asn Ile Ser Phe Tyr Ser Gln Thr Gly Ile Glu Trp Asp Leu	130	135	140
Asp Leu Val Asn Lys Thr Tyr Glu Trp Val Glu Asp Ala Ile Val Val	145	150	155
Lys Pro Asn Asn Gln Ser Trp Gln Ser Val Ile Gly Glu Gly Phe Leu	165	170	175
Glu Ala Gly Ile Leu Pro Asp Asn Gly Phe Ser Leu Asp His Glu Ala	180	185	190
Gly Thr Arg Leu Thr Gly Ser Thr Phe Asp Asn Asn Gly Thr Arg His	195	200	205
Ala Ala Asp Glu Leu Leu Asn Lys Gly Asp Pro Asn Asn Leu Leu Val	210	215	220
Ala Val Gln Ala Ser Val Glu Lys Ile Leu Phe Ser Ser Asn Thr Ser	225	230	235
Asn Leu Ser Ala Ile Gly Val Ile Tyr Thr Asp Ser Asp Gly Asn Ser	245	250	255
His Gln Ala Phe Val Arg Gly Asn Gly Glu Val Ile Val Ser Ala Gly	260	265	270
Thr Ile Gly Thr Pro Gln Leu Leu Leu Leu Ser Gly Val Gly Pro Glu	275	280	285
Ser Tyr Leu Ser Ser Leu Asn Ile Thr Val Val Gln Pro Asn Pro Tyr	290	295	300
Val Gly Gln Phe Val Tyr Asp Asn Pro Arg Asn Phe Ile Asn Ile Leu	305	310	315
Pro Pro Asn Pro Ile Glu Ala Ser Val Val Thr Val Leu Gly Ile Arg	325	330	335
Ser Asp Tyr Tyr Gln Val Ser Leu Ser Ser Leu Pro Phe Ser Thr Pro	340	345	350
Pro Phe Ser Leu Phe Pro Thr Thr Ser Tyr Pro Leu Pro Asn Ser Thr	355	360	365
Phe Ala His Ile Val Ser Gln Val Pro Gly Pro Leu Ser His Gly Ser			

370	375	380
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Met Lys Lys Leu Gly Asp Leu Leu Arg Thr Lys Ala Leu Glu Pro Tyr		
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Lys Ala Arg Asp Val Leu Gly Ile Asp Gly Phe Asn Tyr Leu Gly Val		
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Pro Leu Pro Glu Asn Gln Thr Asp Asp Ala Ser Phe Glu Thr Phe Cys		
	450	455 460
Leu Asp Asn Val Ala Ser Tyr Trp His Tyr His Gly Gly Ser Leu Val		
	465	470 475 480
Gly Lys Val Leu Asp Asp Ser Phe Arg Val Met Gly Ile Lys Ala Leu		
	485	490 495
Arg Val Val Asp Ala Ser Thr Phe Pro Tyr Glu Pro Asn Ser His Pro		
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Gln Gly Phe Tyr Leu Met Leu Gly Arg Tyr Val Gly Leu Gln Ile Leu		
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<210> 23
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 <212> DNA
 <213> Prunus amygdalus

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<210> 24
 <211> 563
 <212> PRT
 <213> *Prunus amygdalus*

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 35 40 45
 Glu Leu Glu Gly Ser Tyr Asp Tyr Val Ile Val Gly Gly Gly Thr Ser
 50 55 60
 Gly Cys Pro Leu Ala Ala Thr Leu Ser Glu Lys Tyr Lys Val Leu Val
 65 70 75 80
 Leu Glu Arg Gly Ser Leu Pro Thr Ala Tyr Pro Asn Val Leu Thr Ala
 85 90 95
 Asp Gly Phe Val Tyr Asn Leu Gln Gln Glu Asp Asp Gly Lys Thr Pro
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 Val Glu Arg Phe Val Ser Glu Asp Gly Ile Asp Asn Val Arg Gly Arg
 115 120 125
 Val Leu Gly Gly Thr Ser Ile Ile Asn Ala Gly Val Tyr Ala Arg Ala
 130 135 140
 Asn Thr Ser Ile Tyr Ser Ala Ser Gly Val Asp Trp Asp Met Asp Leu
 145 150 155 160
 Val Asn Gln Thr Tyr Glu Trp Val Glu Asp Thr Ile Val Tyr Lys Pro
 165 170 175

Asn Ser Gln Ser Trp Gln Ser Val Thr Lys Thr Ala Phe Leu Glu Ala
 180 185 190
 Gly Val His Pro Asn His Gly Phe Ser Leu Asp His Glu Glu Gly Thr
 195 200 205
 Arg Ile Thr Gly Ser Thr Phe Asp Asn Lys Gly Thr Arg His Ala Ala
 210 215 220
 Asp Glu Leu Leu Asn Lys Gly Asn Ser Asn Asn Leu Arg Val Gly Val
 225 230 235 240
 His Ala Ser Val Glu Lys Ile Ile Phe Ser Asn Ala Pro Gly Leu Thr
 245 250 255
 Ala Thr Gly Val Ile Tyr Arg Asp Ser Asn Gly Thr Pro His Gln Ala
 260 265 270
 Phe Val Arg Ser Lys Gly Glu Val Ile Val Ser Ala Gly Thr Ile Gly
 275 280 285
 Thr Pro Gln Leu Leu Leu Leu Ser Gly Val Gly Pro Glu Ser Tyr Leu
 290 295 300
 Ser Ser Leu Asn Ile Pro Val Val Leu Ser His Pro Tyr Val Gly Gln
 305 310 315 320
 Phe Leu His Asp Asn Pro Arg Asn Phe Ile Asn Ile Leu Pro Pro Asn
 325 330 335
 Pro Ile Glu Pro Thr Ile Val Thr Val Leu Gly Ile Ser Asn Asp Phe
 340 345 350
 Tyr Gln Cys Ser Phe Ser Ser Leu Pro Phe Thr Thr Pro Pro Phe Gly
 355 360 365
 Phe Phe Pro Ser Ala Ser Tyr Pro Leu Pro Asn Ser Thr Phe Ala His
 370 375 380
 Phe Ala Ser Lys Val Ala Gly Pro Leu Ser Tyr Gly Ser Leu Thr Leu
 385 390 395 400
 Lys Ser Ser Ser Asn Val Arg Val Ser Pro Asn Val Lys Phe Asn Tyr
 405 410 415
 Tyr Ser Asn Leu Thr Asp Leu Ser His Cys Val Ser Gly Met Lys Lys
 420 425 430
 Ile Gly Glu Leu Leu Ser Thr Asp Ala Leu Lys Pro Tyr Lys Val Glu
 435 440 445
 Asp Leu Pro Gly Val Glu Gly Phe Asn Ile Leu Gly Ile Pro Leu Pro
 450 455 460
 Lys Asp Gln Thr Asp Asp Ala Ala Phe Glu Thr Phe Cys Arg Glu Ser
 465 470 475 480

Val Ala Ser Tyr Trp His Tyr His Gly Gly Cys Leu Val Gly Lys Val
 485 490 495
 Leu Asp Gly Asp Phe Arg Val Thr Gly Ile Asn Ala Leu Arg Val Val
 500 505 510
 Asp Gly Ser Thr Phe Pro Tyr Thr Pro Ala Ser His Pro Gln Gly Phe
 515 520 525
 Tyr Leu Met Leu Gly Arg Tyr Val Gly Ile Lys Ile Leu Gln Glu Arg
 530 535 540
 Ser Ala Ser Asp Leu Lys Ile Leu Asp Ser Leu Lys Ser Ala Ala Ser
 545 550 555 560
 Leu Val Leu